

Patent
Atty. Dkt.: LYNN/0120

REMARKS

Claims 1-11, 17 and 26-51 stand rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,753,770 issued to Breitenbach, *et al.* and U.S. Patent No. 5,674,538 issued to Lokkesmoe, *et al.* The Examiner states that this rejection was maintained from the previous office action. (Final Office Action, p.2, ln. 5).

The Examiner stated that Breitenbach discloses a method for making hydrogen peroxide and dipercarboxylic acid complexes that can be used as a disinfectant. (Office Action, p. 4, bridging paragraph to p. 5). The Examiner further stated that sterilize and disinfect are synonymous, meaning "clean." *Id.* The Examiner then concluded that Breitenbach therefore teaches Applicant's claimed invention of a method for producing a dipercarboxylic sterilizing solution. *Id.*

The Examiner stated that Lokkesmoe teaches a method of controlling microbial growth in an aqueous stream using percarboxylic acid and therefore embraces Applicant's claimed invention. (Office Action, p. 5, ¶. 2).

The Examiner states that Applicant's disclosure does not support, with examples, the effect of Applicant's claimed invention on spores. (Final Office Action, p. 2, ¶ 2).

Applicant claims storing a dry solid material comprising one or more dipercarboxylic acids and dissolving the dry material into water as needed to prepare a sterilizing solution having a dipercarboxylic acid concentration between about 0.1 wt% and saturation. (Claim 1).

To establish a *prima facie* case of obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 291 (CCPA 1974). All words in a claim must be considered in judging the patentability of that claim against the prior art. *In re Wilson*, 424 F.2d 1382, 1385 (CCPA 1970).

An additional requirement for providing a *prima facie* case of obviousness is that the Examiner must provide a basis for combining or modifying the cited references. The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. *In re Mills*, 916 F.2d 680 (Fed. Cir. 1990).

Patent
Atty. Dkt.: LYNN/0120

Neither Lokkesmoe nor Breitenbach disclose or suggest that a dipercarboxylic acid may be stored as a solid and then dissolved in water to prepare a sterilizing solution as Applicant claims. First, as the Examiner has stated, Breitenbach discloses complexes made up of hydrogen peroxide and percarboxylic acids that may be used as disinfectants. The use of such complexes is not claimed by Applicant in the claimed method of preparing a sterilizing solution.

Secondly, Breitenbach discloses that the hydrogen peroxide complexes disclosed therein may be used as *disinfectants* for use in toothpastes, acne treatment, wound dressings, and cosmetics. Breitenbach neither discloses nor suggests that dipercarboxylic acids may be dissolved in water from a solid state to achieve a *sterilizing* solution. Breitenbach merely discloses *complexes* of hydrogen peroxide that may be used as disinfectants, not solid dipercarboxylic acids that may be dissolved in water to prepare a sterilizing solution as Applicant claims.

Lokkesmoe does not disclose, teach or suggest dissolving a solid dipercarboxylic acid in water or that a sterilizing solution may be prepared from dipercarboxylic acids that are stored as a solid before being used to prepare a sterilizing solution. While Lokkesmoe discloses the use of dipercarboxylic acids for controlling microbial growth in an aqueous stream as the Examiner states, this is not what Applicant claims. Lokkesmoe discloses using liquid dipercarboxylic acids to form solutions and further discloses that additives may be added to these solutions to stabilize them. (Lokkesmoe, col. 6, ln. 18-67). In the most preferred mode, Lokkesmoe discloses using peracetic acid as a *liquid*, not as a solid as claimed by Applicant. (Lokkesmoe, col. 5, ln. 29-31). Lokkesmoe does not teach or suggest storing the dipercarboxylic acid as a solid before being dissolved in water to prepare a sterilizing solution, another limitation claimed by Applicant.

Notably, there has been no citation made to a teaching or suggestion by either of the cited references that a dipercarboxylic acid may be stored as a *solid* and that the solid may be *dissolved* in an aqueous solution to prepare a *sterilizing* solution. These are limitation that Applicant claims and that, in a *prima facie* case of obviousness, must be suggested, taught or disclosed by the cited references.

Regarding the Examiner's observation in the Final Office Action that none of

Patent
Atty. Dkt.: LYNN/0120

Applicant's examples presented in the pending application demonstrate the successful use of a dissolved dipercarboxylic acid on spores. Applicant respectfully directs the Examiner to FIG. 1 and to Example 2 of the specification. In Example 2, solid dipercarboxylic acids were dissolved in water and mixed with a solution containing spores. The results, shown in FIG. 1, demonstrate that the claimed method is effective as a sterilizing solution even on spores.

Because neither of the cited references teaches, suggests or discloses that a solid dipercarboxylic acid may be stored and then dissolved when needed to prepare a sterilizing solution, Applicant respectfully asserts that a *prima facie* case of obviousness has not been presented. Reconsideration and withdrawal of the rejection is respectfully requested.

Claims 1-11, 17 and 26-51 stand rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,674,538 issued to Lokkesmoe, *et al.* and U.S. Patent No. 5,674,538 issued to Huber.

As stated above, Lokkesmoe does not teach, suggest or disclose that a solid dipercarboxylic acid may be dissolved in water to prepare a sterilizing solution. Instead, Lokkesmoe discloses using *liquid* dipercarboxylic acids to form solutions that are useful for *preventing* microbial growth. (Lokkesmoe, col. 4, ln. 28). Lokkesmoe discloses that that a *bacteriocidal* agent causes a truly lethal, irreversible action that results in the complete microbial cell destruction, but that a *bacteriostatic* agent causes reversible damage, such that if the organism is rendered free of the agent, it can again multiply. (Lokkesmoe, col. 4, ln. 1-14). Therefore, Lokkesmoe discloses bacteriostatic agents or disinfectants, not sterilizing solutions as claimed by Applicant. That is further demonstrated by the title of the Lokkesmoe patent, which is "Process for *Inhibition of Microbial Growth*." Lokkesmoe does not disclose the use of solid dipercarboxylic acids being dissolved in water at sufficient concentrations to form a *bacteriocidal* solution, as claimed by Applicant.

Huber teaches that sufficient quantity of a solid dipercarboxylic acid may be dissolved to form a bleach solution having a concentration of between about 5 to 200 ppm. Applicant claims concentrations of dipercarboxylic acids of from 0.1 wt% to saturation. There are only a few dipercarboxylic acids that may be stored as a solid and dissolved in sufficient quantity to form a *sterilizing* solution. Huber does not teach or suggest that any dipercarboxylic acid may

Patent
Atty. Dkt.: LYNN/0120

be dissolved in water at sufficient quantity to provide a sterilizing solution.

As pointed out by Applicant, the prevailing thought in the art of sterilants was that dipercarboxylic acids having a molecular weight high enough to make into a solid were not soluble enough in water to be useful as a sterilizing agent. (*Spec.*, page 2, lines 19-28.) Eggensperger even asserts, albeit wrongly, that diperadic acid cannot be sufficiently solubilized to form a sterilizing agent. (U.S. Patent 4,129,517, column 1, lines 39-41.) Such was the state of the art at the time of Applicant's invention. None of the references that the Examiner has presented contradicts Appellant's observation. None of the references presented by the Examiner teach or suggest that there are dipercarboxylic acids that may be formed in a solid form and then solubilized in sufficient concentration to prepare a sterilizing solution as claimed by Applicant. None of the references presented by the Examiner teach or suggest a likelihood of success of forming a solid dipercarboxylic acid that may then be dissolved in water to form a 0.1 weight percent sterilizing solution. Applicant asserts that having failed to present references that teach or suggest a likelihood of success in preparing a sterilizing solution by dissolving a solid dipercarboxylic acid in water to form at least a 0.1 weight percent solution in water, the Examiner has failed to present a *prima facie* case of obviousness. Reconsideration and withdrawal of the rejection is respectfully requested.

The Examiner states that a solution of dipercarboxylic acid has its inherent properties whether those properties were realized or not. (Final Office Action, p. 2, ¶ 4). Applicant respectfully asserts that the claimed invention is *not* for a composition of matter, for which inherent properties of a known prior art composition of matter would not patentable. Rather Applicant claims a *method* for using dipercarboxylic acids having properties that make them useful for being stored as a solid and then being used to prepare a sterilizing solution. As Applicant has pointed out in the Specification and discussed above, the claimed method was not known by those having ordinary skill in the art at the time the patent application was filed.

Therefore, because the cited references have not disclosed, taught or suggested each of Applicant's claimed limitations, *i.e.*, dissolving a solid dipercarboxylic acid in water to prepare an aqueous sterilizing solution, Applicant respectfully asserts that a *prima facie* case of obviousness has not been presented. Reconsideration and withdrawal of the rejection is

Patent
Atty. Dkt.: LYNN/0120

respectfully requested.

Applicant respectfully asserts that all claims are now in condition for allowance and requests that a Notice of Allowance be issued. If the Examiner determines that a telephone interview would expedite the examination of the pending patent application, the Examiner is invited to telephone the undersigned attorney at the convenience of the Examiner. In the event there are additional charges in connection with the filing of this Response, the Commissioner is hereby authorized to charge the Deposit Account No. 50-0714/LYNN/0120 of the firm of the below-signed attorney in the amount of any necessary fee.

Respectfully submitted,



Frank J. Campigotto
Attorney for Applicant
Registration No. 48,130
STREETS & STEELE
13831 Northwest Freeway, Suite 355
Houston, Texas 77040
(713) 939-9444
Customer No. 24945